# JATO/RATO

## *Jet Assisted Take Off / Rocket Assisted Take Off*

**HERO** - Compliant to US Navy standards for Hazards of Electromagnetic Radiation to Ordnance.

**ESD** - Safe against Electro Static Discharge.

**FLASHLESS** - Flashless Technology allows clandestine nighttime operations.

**PERFORMANCE** - Rocket motor performance matched to requirement.

**LAUNCH CONTROL** - Rocket motor preflight test and launch control system available.

**EXPERIENCE** - Developed and produced nine successful RATO launch systems.

**WSESRB** - Approval for shipboard use from Weapon System Explosive Safety Review Board.

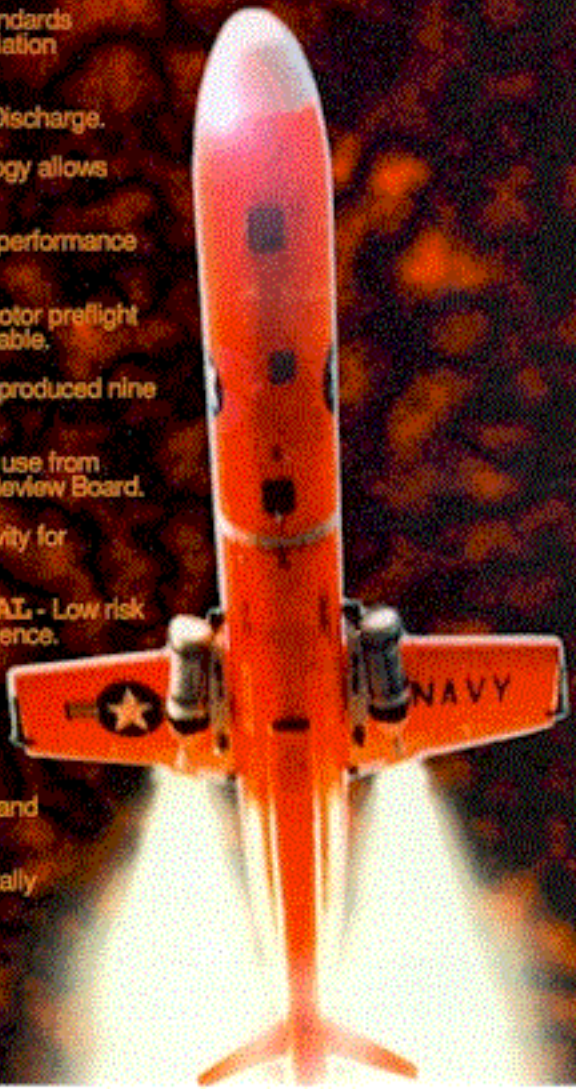
**CFA** - Navy's Cognizant Field Activity for Rocket Assisted Take Off (RATO).

**COST, SCHEDULE, TECHNICAL** - Low risk and short lead time based on experience.

**PARTNERSHIP&TEAMING** Use Integrated Project Team approach.

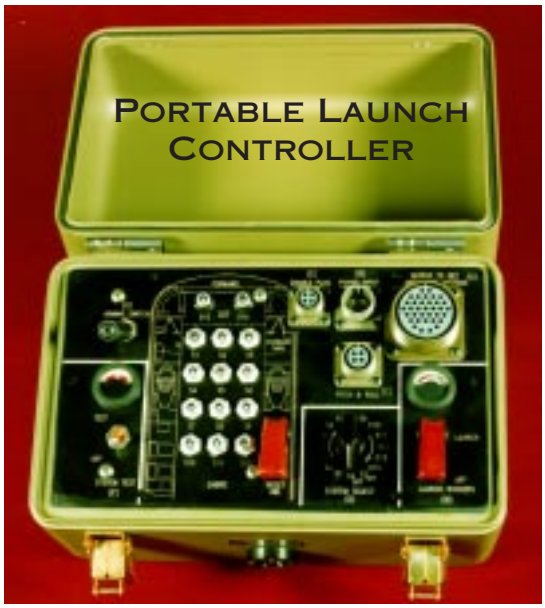
**DIVERSITY** - Teamed with all US Armed Forces, private industry, and allied countries

**GREEN** - Developing environmentally friendly energetics.



At Indian Head, RATOs/JATOs are designed, developed, modeled, and qualified to be safe, reliable, maintenance-free, and durable.

Our most recent developments in RATO propulsion are the Flashless Rocket Motor (Mk 125 Mod 2) for the Pioneer Unmanned Air Vehicle; and a new 10-pound, one-man portable launch control system.




### *New Launch Control System Available Now*

- $10,000 per system
- Remote arming via enable plug
- 10 pounds, one man portable
- Environmentally encapsulated
- Check multiple devices per setup
- Four wire system automatically nulls line resistance

### *Applications*

RATOs/JATOs are propulsion systems that use solid-propellant rocket motors to:

- Accomplish land, ship, air and sub launches of aerial targets, drones, and other unmanned vehicles and remotely piloted vehicles that will be employed for weapon system training and operational evaluation, reconnaissance and surveillance, decoys, targeting and spotting, and weapons delivery.

- Contribute additional thrust for aircraft during takeoff with heavy payloads for shortened or damaged runways, from high-altitude airfields, from remote sites in polar regions.

### *Qualified Propulsion Booster Parameters*

- Booster family ranges from 2.75 to 10 inch diameter.
- Specific impulse ranges from 600 to 76,000 pound-seconds.

### *Indian Head Capabilities*

Indian Head Division, Naval Surface Warfare Center provides the full spectrum of capabilities necessary to rapidly move energetic products from conception through production to operational deployment. Moreover, test and evaluation are used to support each phase.

Conception
✦
Research & Development Design
Modeling & Simulation
✦
Manufacturing Technology, Engineering
✦
Program Management
✦
Full Scale Engineering Development
✦
Configuration Control
✦
Acquisition
✦
Low Rate Production/Production Support
✦
Full Scale Production/Production Support
✦
Systems & Platform Integration, Logistics Support, Deployment, Training
✦
Operations
✦
Fleet Support in Service Engineering
✦
Depot Maintenance
✦
Aging Studies, Service Life
✦
Demilitarization

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